



GRADE: X

**Question Bank**  
**PHYSICS**

Qn. No	SECTION-A	Marks allocated
1	What kind of mirror can have : a) focal length of -20cm - <b>Concave mirror</b> b) focal length of +15cm - <b>Convex mirror</b>	1/2 1/2
2	Name the phenomenon due to which a swimming pool appears less deep than it really is.  <b>Refraction</b>	1
3	Where should an object be placed in front of a convex lens so as to obtain its virtual ,erect and magnified image?  <b>Between focus and lens</b>	1
4	What is the range of vision of a normal human eye?  <b>Between 25 cm and infinity</b>	1
5	State two effects produced by the scattering of light by the atmosphere.  <b>Blue colour of the sky</b> <b>Tyndall effect</b>	1/2 1/2
6	Why are the danger signal lights red in colour ? <b>The red is least scattered by fog or smoke.</b>	1
7	<b>Assertion</b> : Light is able to reach earth from the Sun. <b>Reason</b> : Light rays can travel in vaccum .  <b>a) Both A and R are true, and R is correct explanation of the assertion.</b>	1

	Answer Q. No 17 - 20 contain four sub-parts each. You are expected to answer all four subparts in these questions.	
8	<p>Answer the questions that follow on the basis of your understanding of the following case and the related studied concepts:</p> <p>Shyam participated in a group discussion in his interschool competition on the practical application of light and was very happy to win the award for his school. On that very evening, his father celebrated the day with a family dinner. At a particular moment, Shyam observed in a curve plate, the image of a person's mobile sitting on his back side. Person's mobile was fell off which the person didn't know about it. Shyam went to the person and informed about this. The person was thankful to Shyam</p>	
	<p>From which side of the plate Shyam observed this incident?</p> <p>a) <b>Outward curve</b>  b) Inward curve  c) Left side  d) Right side</p>	1
	<p>The part of the curve plate was acting like which type of mirror?</p> <p>a) plane mirror  b) concave mirror  c) <b>convex mirror</b>  d) none of the above</p>	1
	<p>State the nature and size of image formed by this mirror.</p> <p>a) <b>Virtual, erect and diminished</b>  b) Virtual, erect and enlarged  c) Real , inverted and diminished  d) Real , inverted and enlarged</p>	1
	<p>An object is placed at a large distance in front of a convex mirror of radius of curvature 40cm. How far is the image behind the mirror?</p> <p>a) 40 cm  b) <b>20 cm</b>  c) 80 cm  d) 60 cm</p>	1

9	<p>Answer the questions that follow on the basis of your understanding of the following paragraph and the related studied concepts.</p> <p>The foundation of modern optics lays in 1672 when Sir Isaac Newton publishes his paper on the bending of light through prism. His experiments in bending of light through prisms led, eventually, to the revolutionary discovery of the existence of a mixture of distinct coloured rays in white light and, distinguishable when refracted through a prism. In his experiment, he set up a prism near his window, and projected a beautiful spectrum 22 feet onto the far wall. Further, to prove that the prism was not colouring the light, he refracted the light back together.</p>	
	<p>State the property of light that is used by the prism to form a spectrum.</p> <p>a) Refraction of light  b) Reflection of light  c) Scattering of light  d) Both (a) and (c)</p>	1
	<p>A beam of white light is shone into a glass prism . The light cannot be :</p> <p>a) deviated  b) dispersed  c) focused  d) refracted</p>	1
	<p>The colour of white light which is deviated the maximum on passing through the glass prism is:</p> <p>a) Violet  b) Blue  c) Red  d) Green</p>	1
	<p>The dispersion of white light occurs because:</p> <p>a) Different colours travel at different speeds  b) Red colour has the minimum speed  c) Violet colour has the maximum speed  d) None of the above</p>	1

SECTION B		
10	<p>a) Define 1 Dioptre of power of a lens. 1 dioptre is the power of a lens whose focal length is 1 metre.</p> <p>b) Find the power of a concave lens of focal length 2 m.  <math>f = -2\text{m}</math>  <math>P = 1/f</math>  <math>= 1/-2</math>  <math>= -0.5\text{ D}</math></p>	<p>1</p> <p>1/2</p> <p>1/2</p>
11	<p>Describe the formation of rainbow in the sky?</p> <p>Caused by dispersion of sunlight by tiny water droplets          Formed in a direction opposite to that of the Sun          Water droplet acts like a small prism          A ray of white light undergoes refraction, dispersion and total internal reflection</p>	<p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1/2</p>
SECTION C		
12	<p>Draw a simple labelled diagram of the human eye. Describe the function of the following:</p> <p>Diagram</p> <p>a) cornea – provides most of the refraction of light          b) eye lens – provides the focused real and inverted image of the object on the retina          c) pupil – regulates and controls the amount of light entering the eye</p>	<p>1</p> <p>1/2</p> <p>1/2</p> <p>1/2</p> <p>1/2</p>
SECTION D		
13	<p>a) Construct a ray diagram to illustrate the formation of a virtual image using a concave mirror. Diagram</p> <p>b) State one use of concave mirror and convex mirror.          Concave mirror- can be used as shaving mirror          Convex mirror – can be used as side-view mirror in vehicles</p> <p>c) Find the nature and position of image formed when an object is placed at a distance of 15 cm from a concave mirror of focal length 10 cm.</p> <p><math>u = -15\text{ cm}</math>  <math>f = -10\text{ cm}</math>  <math>1/f = 1/v + 1/u</math>  <math>1/v = 1/f - 1/u</math>  <math>= 1/-10 - 1/-15</math>  <math>= -30\text{ cm}</math></p> <p>Real and inverted image is formed in front of the mirror at a distance of 30 cm from the mirror.</p>	<p>2</p> <p>1/2</p> <p>1/2</p> <p>1</p> <p>1</p>